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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,511	10/14/2003	Todd M. Steinmetz	GP-304140	3530

7590

09/07/2005

Leslie Hodges  
General Motors Corporation  
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Detroit, MI 48265-3000

EXAMINER
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ARTHUR JEANGLAUDE, GERTRUDE

ART UNIT	PAPER NUMBER
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3661

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/686,511

Applicant(s)

STEINMETZ ET AL.

Examiner

Gertrude Arthur-Jeanglaude

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

Claims 1-27 are presented for examination.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt (U.S. Patent No. 5,931,757) in view of Fattic et al. (U.S. Patent No. 5,637,987).

As to claim 1, Schmidt discloses a speed control for a multi-mode, electromechanical transmission including an input member coupled to a prime mover, at least one planetary gear set, at least one motor, at least one torque transfer device, a plurality of operating states and an output member (See abstract), Schmidt et al. fail to specifically disclose that the system comprises an open loop motor torque controller operative to control a preselected transmission speed to a target speed as a predetermined function of preselected transmission torques and accelerations. In an analogous art, Fattic et al. disclose an open loop motor torque controller operative to control a preselected transmission speed to a target speed as a predetermined function of preselected transmission torques and accelerations (See col. 6, lines 51-58). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Schmidt with that of Fattic et al. by having an open loop motor torque controller operative to control a preselected transmission speed to

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a target speed as a predetermined function of preselected transmission torques and accelerations in order to control the operation of the system.

As to claims 2, 8, 9, Schmidt et al. disclose all but fail to specifically disclose at least one closed loop effort operative to act upon a predetermined transmission speed error. In an analogous art, Fattic et al. disclose a closed loop effort operative to act upon a predetermined transmission speed error (See col. 6, lines 51-58). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Schmidt with that of Fattic et al. by having a closed loop effort operative to act upon a predetermined transmission speed error in order to control the operation of the System.

As to claims 3-6, 10-11, Schmidt et al. disclose all but fail to specifically disclose the limitations of the claims as set forth. In an analogous art, Fattic et al. disclose a plurality of operating states includes a first state effective to operatively couple the input to the output through a first gear set (19), a second state effective to operatively couple the input to the output through a second gear set (21), a third state effective to operatively decouple the output from the transmission, and further wherein when one of said first and second states is operative the preselected transmission member torques comprise input member torque and output member torque, and the preselected transmission accelerations comprise input member acceleration and

output member acceleration (See col 1, lines 30-62, col. 2, lines 20-67). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Schmidt et al. with that of Fattic et al. by controlling transmission member speed the controlled external torques comprise motor torques; and a third state effective to operatively decouple the output from the transmission, and further wherein when one of said first and second states is operative the preselected transmission member torques comprise input member torque and output member torque, and the preselected transmission accelerations comprise input member acceleration and output member acceleration since it would allow the control of a generator torque to produce a reaction torque in order for accelerating the vehicle.

As to claims 7, 12, Schmidt et al.. Method for controlling transmission member speed in a multi-mode, electromechanical transmission including an input member coupled to a prime mover, at least one planetary gear set, at least one motor, at least one torque transfer device, a plurality of operating states and an output member, comprising: providing a model of the transmission corresponding to an active one of the plurality of operating states, said model including controlled and uncontrolled external torques and preselected transmission accelerations; providing values for said uncontrolled external torques into the model; providing values for said preselected transmission accelerations into the model; solving the model for values of the controlled external torques; and, applying torque to the transmission in accordance with the values for the controlled external torques.

As to claims 13-19, 20-27, Schmidt et al. disclose all but fail to specifically disclose the limitations of the claims as set forth. In an analogous art, Fattic et al. disclose uncontrolled external torques comprise input and output member torques; and for controlling transmission member speed the controlled external torques comprise motor torques (See col. 5, lines 11-39); controlling transmission member speed the controlled external torques comprise motor torques; and the preselected transmission accelerations comprise input and output member accelerations; and the uncontrolled external torques comprise input and output member torques, the controlled external torques comprise motor torques, the preselected transmission accelerations comprise input and output member accelerations, and the torque applied to the transmission in accordance with the values for the controlled external torques is applied via the pair of motors; and providing a closed loop effort acting upon a predetermined transmission member speed error; and the predetermined transmission member speed error comprises input member speed error (See col. 2, lines 15-67; col. 5, lines 6-65; col. 6, lines 51-58). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Schmidt et al. with that of Fattic et al. by controlling transmission member speed the controlled external torques comprise motor torques; and the preselected transmission accelerations comprise input and output member accelerations since it would allow the control of a generator torque to produce a reaction torque in order for accelerating the vehicle.

### ***Conclusion***

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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Buchanan et al.

(U.S. Patent No. 6,819,997)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gertrude Arthur-Jeanglaude whose telephone number is (571) 272-6954. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 6:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on (571) 272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GAJ

*GAJ*

September 2, 2005

*Gertrude A. Jeanglaude*  
GERTRUDE A. JEANGLAUDE  
PRIMARY EXAMINER